IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ATTY.'S DOCKET: BLATT =2

In re Application of:	)	Art Unit: 1761
Yoav BLATT et al	)	Examiner: Helen Pratt
Appln. No.: 09/935,050	)	Washington, D.C.
Date Filed: August 23, 2001	)	Confirmation No. 7772
For: STABLE COATED MICROCAPSULES	)	

DECLARATION UNDER 37 CFR 1.132

I, Yoav Blatt, Ph.D., hereby solemnly declare as follows:

I am the same Yoav Blatt who is an inventor of the invention of the present application and an applicant of the above-identified application.

Attached is a copy of my *Curriculum Vitae* which is accurate and is made a part of this Declaration.

I am familiar with the prosecution of the above-identified U.S. patent application in the United States Patent and Trademark Office and have reviewed the Action of the examiner mailed December 9, 2004.

In such Office Action, the claims are rejected on the basis of the Sato et al U.S. patent in view of some other patents, including a patent in the name of Kantor et al

4,895,725. I wish two address two points in particular in this rejection.

The Sato U.S. patent forms beads by a phase inversion procedure. In order to do so, it is necessary to use a solvent. Solvent is used in the twelve step procedure of Sato in steps (4), (5) and (6)(a) described in the Sato et al patent at column 2, commencing at line 37. The water immiscible solvents are mentioned in the paragraph beginning at column 4, line 65.

The use of solvents are avoided in our process, and in fact it is important to avoid solvent which increase the complexity of the processing, adds unnecessary costs, and which can undesirably increase the volume of the material to be encapsulated thus inherently and unavoidably increasing the size of the microcapsules per unit dose of each capsule, all of which are contrary and/or undesirable to our invention.

According to our invention, we avoid the phase inversion method of the Sato et al U.S. patent, and instead form the microcapsules from an emulsion containing an alkali metal alginate by dropping the emulsion into a calcium ion containing solution. As a result, a shell or second coating of calcium alginate is formed about the particles of encapsulated material. Calcium ions serve as a crosslinking agent for the alginate, i.e. the calcium ions crosslink the

carboxylic groups on the different polymeric chains of the alginate, thus forming a gel.

However, this in turn presents a problem which we overcome by acid washing. Without acid washing, the bioavailability of the active material encapsulated in the alginate shell is limited because the crosslinked alginate shell provides a barrier. By our acid washing, we substantially reduce the calcium ion content of the alginate shell or second coating. This weakens the bonding between the alginate chains to a minimum calcium content that is still sufficient to maintain a stable gel shell, but on the other hand substantially increases the bioavailability through the shell of the active material within the shell.

These results of reduced calcium content in the alginate shell by acid washing have been demonstrated by certain tests conducted me or under my supervision as follows:

β-carotene was encapsulated following the general procedure of Example 1 of our above-identified U.S. patent application. Following formation of the spherical droplets to form the calcium alginate second coating, the β-carotene containing wet beadlets were washed for 30 minutes in citric acid solutions at different concentrations. After the citric acid wash, the beadlets were dried and then analyzed for

calcium ion content using the ICP method. The results were as follows:

Citric Acid concentration (%)	Calcium ion content (%)
0.0	6.5
3.5	3.7
7.0	0.8
10.0	0.6

These tests show as fact the effectiveness of the acid wash in reducing the calcium ion content of the calcium alginate shell.

The Kantor et al U.S. patent mentions the use of an acidic solution, but for an entirely different reason and purpose, i.e. the microcapsules in the Kantor et al U.S. patent are formed from ammonium hydroxide suspension which is atomized into an acidic solution. There is no concept in the Kantor U.S. patent of using an acidic solution for washing calcium ion from a calcium alginate shell. In my opinion as an expert in this art, the idea of reducing the calcium ion content of a calcium alginate shell cannot be learned from Kantor et al U.S. patent.

I hereby further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge

that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

By _____

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YOAV BLATT **March 2005**

CURRICULUM VITAE

Personal

Date and Place of Birth	June 27th, 1949, Rehovot, Israel
Nationality:	Israeli
Military Service	1967-1970, Israeli Defense Forces
Marital Status	Married (to Cila), Two children, Nily (1972), Uri (1977)
Home Address	6 Taran Street, Rehovot 76248, Israel Tel: 972-8-9362293 Cellular: 052-4313512 e-mail: yoav@biodar.com; yoav512@bezeqint.net

Education

1970-1973	B.Sc. Chemistry, Hebrew University of Jerusalem, Israel
1974-1975	M.Sc. Life Sciences, Feinberg Graduate School, The Weizmann Institute of Science, Rehovot, Israel. Title: Interaction of immunoglobulins of the M class with haptens. Instructor: Prof. Israel Pecht, Dept. Chemical Immunology.
1976-1981	Ph.D. Life Sciences, Feinberg Graduate School, The Weizmann Institute of Science, Rehovot, Israel. Title: The mechanism of action of cytochrome oxidase from *Pseudomonas aeruginosa* Instructor: Prof. Israel Pecht, Dept. Chemical Immunology

Activities

1981-1983	Postdoctoral studies with Profs. G. Feher and M. Montal, Department of Physics, University of California San Diego, California. "Reconstitution of reaction centers from photosynthetic bacteria into lipid bilayers".
1983-1985	Postodoctoral studies with Prof. M. Montal, Department of Physics, University of California San Diego, California. "Reconstitution of acetylcholine receptor into lipid bilayers – probing subunits functions using monoclonal antibodies."
1992-1993	Sabbatical at Hoffman La-Roche, Nutley, New Jersey, USA.

Memberships

Controlled Release Society
Institute of Food Technologists
American Association of Pharmaceutical Scientists

Expertise

Microencapsulation and coating, drug delivery, slow release formulations, polymers, cGMP, pharmaceutical development and production, fluid bed machinery, food additives, vitamins and minerals, biochemistry, biophysical and analytical chemistry.

Employment

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